F·A·A·M facility for airborne atmospheric measurements

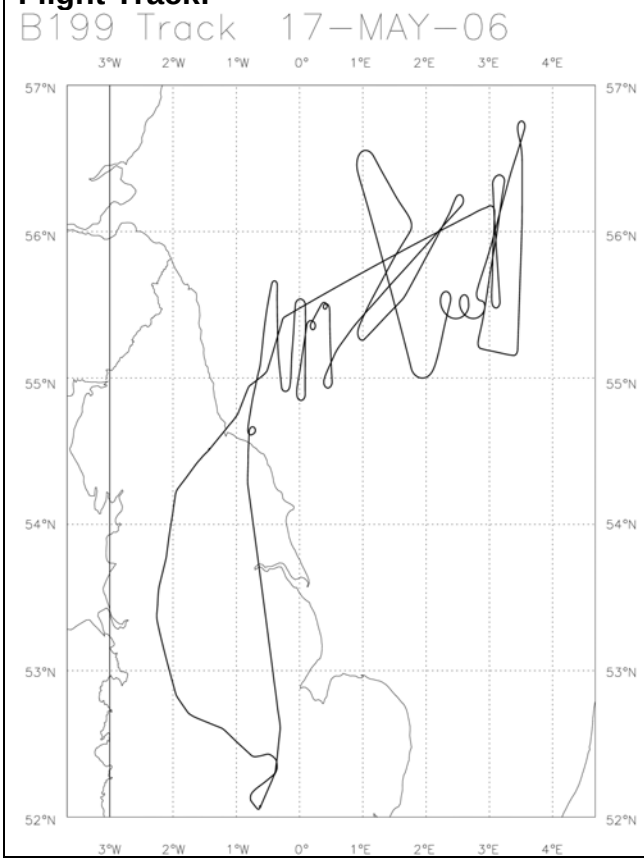
FLIGHT FOLDER

Flight No.:	B199	
Date:	17 May 2006	
Take Off	09:23:08	15:49:57
Landing:	14:36:38	16:33:43
Flight Time	5h13m30s	0h43m46s

Campaign: CAESAR
Trials Instructions:
Operating Area: North Sea

POB	Position	Name	Institute
1	Captain	Alan Foster	Directflight
2	Co-pilot	Alan Roberts	Directflight
3	CCM	Gaynor Ottaway	Directflight
4	Mission Scientist	Dave Pollard	Met Office
5	Flight Manager	Ruth Purvis	FAAM
6	AVAPS / Core Chem. / CCM2	Jamie Trembath	FAAM
7	Mission Scientist 2	Claire Allen	Leeds University
8	CPI	Hazel Jones	Manchester University
9	Cloud Physics	Kate Turnbull	FAAM
10	Trainer	Paul James	FAAM
11	CCN	Richard Cotton	Met Office
12	Aries	Dave Tiddeman	Met Office
13	SWS	Martin Glew	Met Office
14	MARRS / DEIMOS	James Bowles	Met Office
15	Neph	Ben Johnson	Met Office
16			
17			
18			

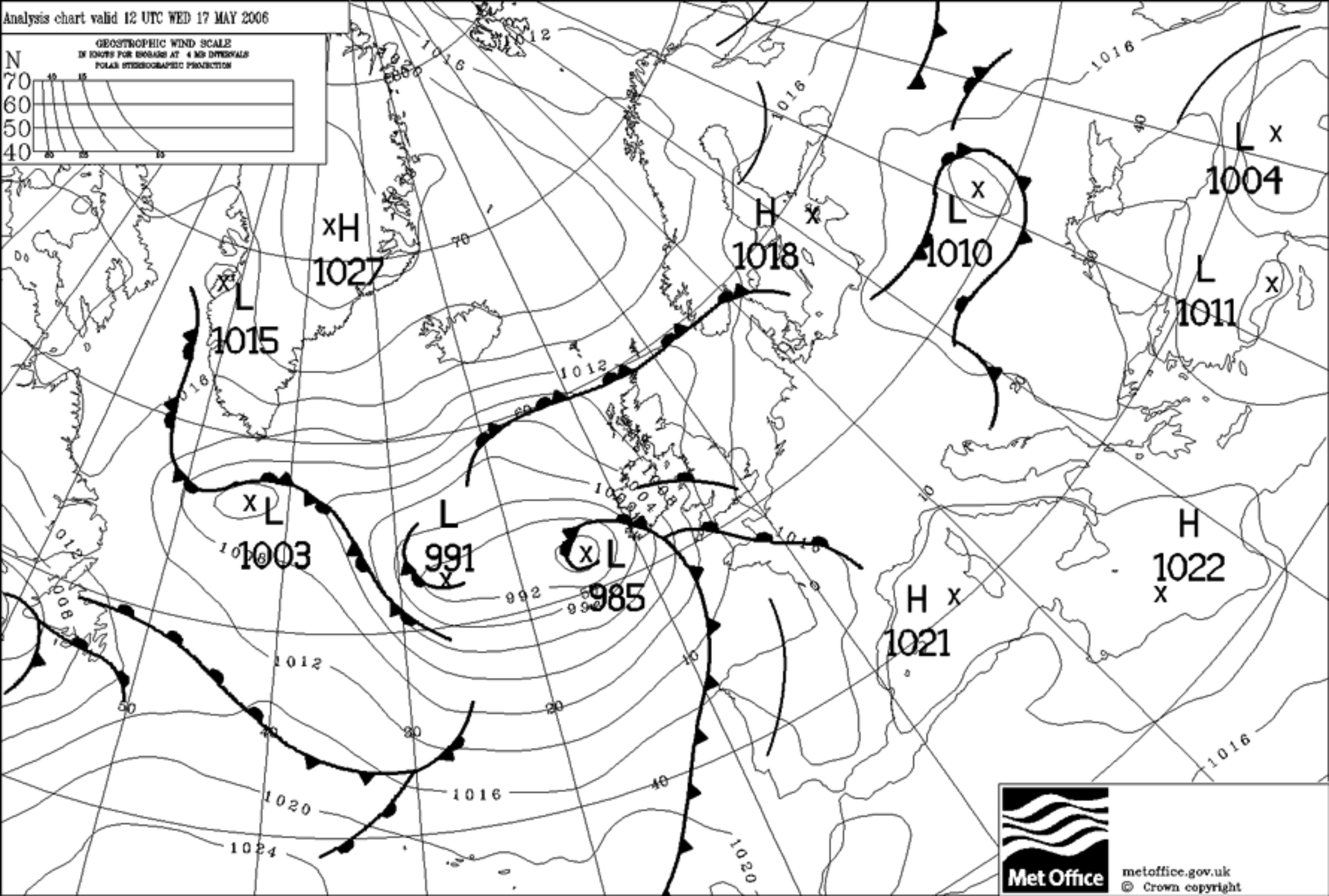
Flight Track:



FLIGHT SUMMARY

Flight No B199
Date: 17 May 2006
Project: CAESAR
Location: NORTH SEA

Start Time	End Time	Event	Height (s)	Hdg	Comments
091011		start position	0.24 kft	129	52'04.36N 0'37.48W
092308		T/O	0.24 kft	211	cranfield
092820		ASP	6.9 kft	062	Opened
094658		Video	11.0 kft	346	RFC 1UFC/DFC 1
100508	101853	Run 1	0.09 - 0.11 kft	012	100ft
102040	103208	Profile 1.1	0.06 - 10.0 kft	181	from 50ft 1000ft/min
103405	104137	Profile 1.2	10.0 - 17.0 kft	003	1000ft/min
103545		Video	11.5 kft	358	switch to DFC
104340	105102	Profile 1.3	17.0 - 24.0 kft	185	1000ft/min
105301	105855	Run 2.1	23.0 - 23.1 kft	353	105855 35deg
105855	110108	Orbit	23.1 - 23.0 kft	098	105855 35deg
110108	110305	Run 2.2	23.0 kft		
110305	110435	Orbit 2	23.1 kft	072	60 deg 55deg
110435	111042	Run 2.3	23.0 kft	188	
111259	113059	Run 2.4	23.1 - 23.0 kft	017	
112129		Video	23.0 kft	040	RFC2 UFC/DFC2
112607		Video	23.0 kft	041	UFC
113338	114017	Profile 2	23.1 - 29.0 kft	220	
114017	115018	Run 3	29.0 kft	227	
115235	115826	Profile 3.1	29.0 - 33.0 kft	021	
120055	120759	Profile 3.2	33.0 - 35.0 kft	311	
120836		Video	35.0 kft	291	DFC
121202	122449	Run 4.1	35.1 - 35.0 kft	180	
121555		Sonde 1	35.0 kft	177	
122401		Sonde 2	35.0 kft	177	
122745	123145	Run 4.2	35.0 kft	002	
123211	123707	Orbit 3	35.0 kft	001	23deg
123808	124235	Orbit 4	35.0 kft	287	25.4deg
124400	125400	Run 4.3	35.0 kft	359	
125803	130304	Run 4.4	35.1 - 35.0 kft	183	
125821		Video	35.0 kft	184	RFC3 UFC/DFC3
130405	130516	Profile 4	35.0 - 34.0 kft	200	
130516	131230	Run 5	34.0 kft	200	
131548	131706	Profile 5	34.1 - 33.0 kft	278	
131938	132055	Profile 6	33.1 kft	357	
132055	133053	Run 6	32.0 kft	358	
133338	133500	Profile 7	32.1 - 31.0 kft	190	
133501	134147	Run 7	31.0 - 31.1 kft	191	
134347	134520	Profile 8	31.1 - 30.1 kft	341	
134520	135020	Run 8	30.1 - 30.0 kft	349	
135151	140232	Profile 9	30.1 - 19.0 kft	256	
142622		ASP	11.6 kft	214	closed
143638		Land	0.19 kft	223	teesside
153444		tees posn	0.23 kft	268	54'30.70N 1'25.70W
154957		T/O	0.24 kft	225	Teesside
163343		Land	0.40 kft	206	
163735		end posn	0.42 kft	310	52'04.36N 0'37.50W


Analysis chart valid 12 UTC WED 17 MAY 2006
GEOSTROPHIC WIND SCALE
IN KNOTS FOR 850MB AT 4 MB INTERVALS
POLAR STEREOGRAPHIC PROJECTION
N
70
60
50
40
H
1027
L
1015
L
1003
L
991
L
985
H
1018
L
1010
L
1004
L
1011
H
1022
H
1021
1016
1012
1020
1024
1008
992
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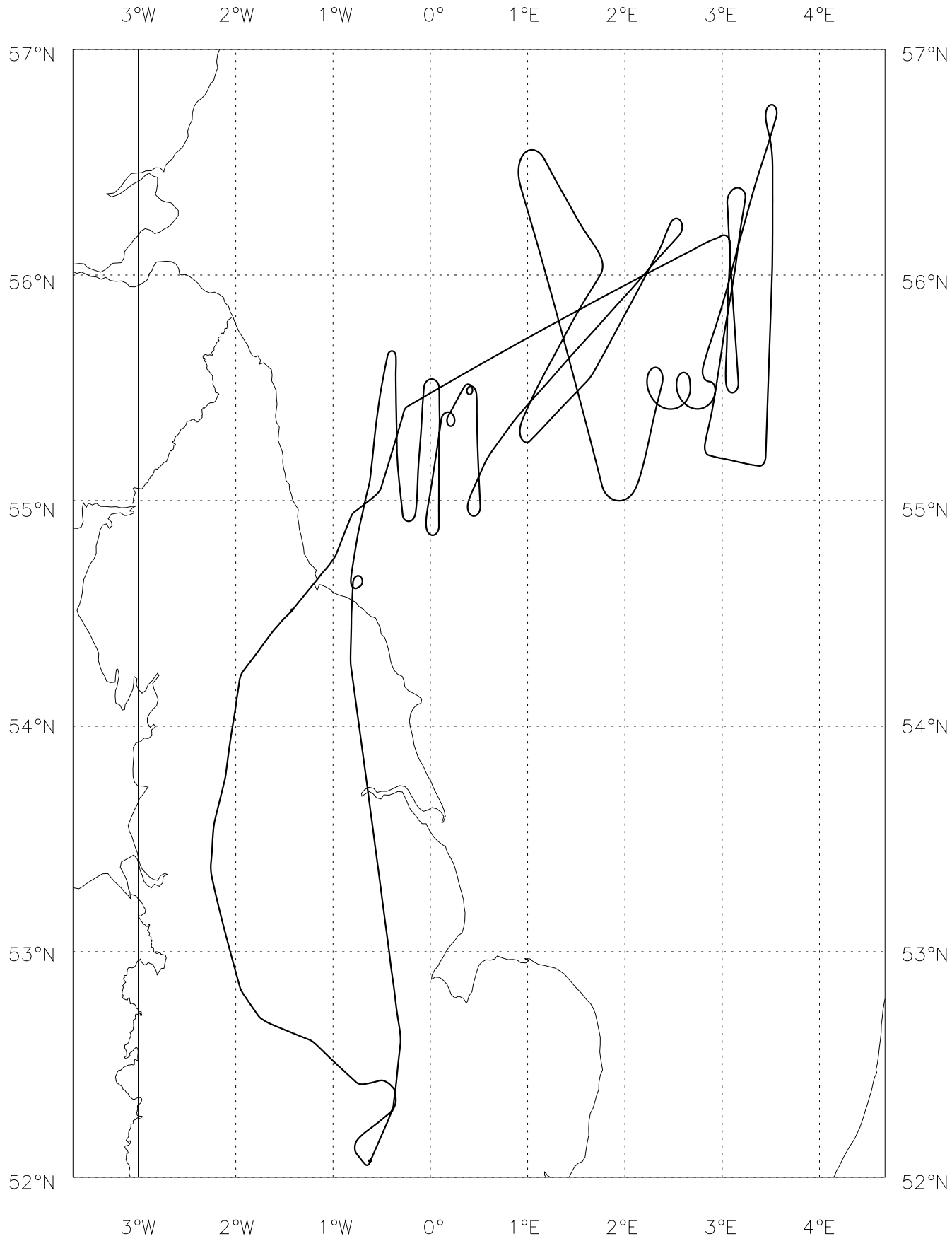
B199 Track 17-MAY-06



FAAM Sortie Brief ***ICEPIC: Study of the development of cumulus clouds***

Flight No: B199 Date: 16th May 2006

Trial objectives:
To investigate the development of ice-phase and precipitation in Cu over the UK.

Location:
In developing Cu clouds over SW / Central S.England or Wales (suggest a rectangular box with NW corner at 54deg N, 06deg W and SE corner at 50deg N, 01deg W)

Weather:
Either individual, or groups of Cu cloud forming predominantly over land. Evolving clouds may also be tracked over the sea.

Special requirements:
Key temperature levels for cloud penetrations are 0, -3, -6, -9C then colder as reqd. If operating near Chilbolton radar, relay range/bearing of target clouds to "Radsearch" (130.575 MHz). Maintain continuous monitoring of turbulence probe differential pressures – if any icing observed, descend below freezing level to clear.

Flight pattern:

1. Take off from Cranfield between 11:00 and 12:00L.
2. Transit to the operating region at FL200 and identify suitable clouds (40mins).
3. Perform profile descent from FL200 to minimum permitted altitude at 1000ft/minute (70mins). May be stepped to avoid cloud penetrations. Profile ideally finishes below target clouds.
4. Perform a SLR below cloud for 10minutes in a direction determined by the mission scientist to remain in inflow of target clouds (85mins).
5. Turn onto reciprocal heading and perform a SLR at 500ft below cloudbase for ten minutes (100mins).
6. Ascend to around the 0C level or 500ft below the cloud top (110mins).
7. Perform a penetration with wings level through the cloud (115mins).
8. If a single cloud is large and clearly identifiable and the cloud is continuing to develop, make a reciprocal turn while ascending by ~1000ft (-3C in temperature) and repeat the cloud penetration several times (150mins).
9. If the cloud is not large or discrete, then proceed successively to the next visible cumulus cell, and repeat the penetrations at approximately 0C for a 10minute interval. Perform reciprocal turn while climbing by intervals of -3C and repeat 10minute runs (150mins).
10. Continue 8 and/or 9 as time permits (250mins).
11. Finish with a profile ascent from minimum permitted altitude to FL200 or 1000ft above highest cumulus tops (whichever is higher) at 1000ft/min.
12. Transit to Cranfield and land (300mins).

Note) – target clouds should be continuing to develop – look for rising cloud tops and solid, sharp-edged cloud boundaries. If red echoes show on the aircraft radar, or cloud top is decreasing, or cloud becomes heavily glaciated (diffuse boundaries) then move on to next cloud

Mission Scientist Debrief

B199
17th May 2006
CAESAR - North Sea
Mission Scientist: Dave Pollard

A good cirrus flight during which radiative measurements were taken above and below a good layer of cirrus with clear skies below for the most part, as well as in situ measurements of the microphysics.

Contrails were seen during some of the high level operations and rear facing footage was recorded throughout the sortie and some engine settings noted.

Weather Conditions:

Two warm fronts preceding a developing, intense low pressure system were moving across the country with cirrus ahead of them moving into the North Sea during the sortie.
At the start of the sortie, the cirrus bases were at FL240 and tops were at around FL350. During the sortie, the tops reduced to around FL300 while the bases remained at FL240.
The region of cirrus worked had a well defined northern edge which coincided with the southern edge of a sheet of stratus at low level.

Sortie:

After transiting to the operating area a 100ft run was carried out heading north parallel to the coast. The run was for the most part conducted under cirrus with no other cloud above with the exception of the northern end where the run was extended under strato-cumulus in order to allow CCN and Wet Neph measurements to be completed.
We then turned onto reciprocal and carried out an interrupted profile ascent to FL240 where CPI and cloud physics began to report seeing ice crystals. Based on this a run was conducted at FL230 which was interrupted to perform two orbits, the first of which was at a bank angle of 35º, and the second at 55º. The run was then extended out beyond the Cirrus edge which coincided with a sheet of St at low level.
A profile was then under taken to reach FL290 and a run carried out at this level within the cirrus, during which CPI reported seeing some bullet rosettes.
We then profiled up to get above the Ci, eventually reaching FL350 where we were skimming through the tops of the Ci. During the ascent we began contrailing at FL338. At FL348 there seemed to be a rapid change in the microphysics towards plates and small ice. We then conducted a run during which we dropped two sondes one ten minutes before and one at the time of the expected AQUA overpass, followed by two orbits of 23º and 25.4º respectively with the radiation instruments viewing nadir (SWS was frozen in position so no zenith views were possible). Further runs were conducted at this level which continued to skim the tops and transition the Ci edge.
A series of 1000ft profile descents followed by runs were conducted in order to try and sample the cloud physics at various levels in the cloud, but the tops were descending at the same rate as the aircraft and so only the tops were really sampled.

During the recovery, initially to New Castle and subsequently to Durham Tees Valley, a profile descent was undertaken which emerged from the Ci base at FL240.

Instrument Status:

TWC - u/s after 10:27
MARSS - no Ch 16
Cloud Physics – Data lost but subsequently recovered.

No other problems reported.

Aircraft Scientist's Log

Roughno

945

Ci

Flight No **B**...199..... Date ...17/5/6..... Page ...1... of ...5...

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
9:25					Cloud (Sc) at 2 kft
9:23:8					T/O
9:34					Clr on transit : Sct Sc (6/8)
					at low level
					Thick looking Ci above
					8/8
9:41					Wx as before, looking clearer below
					to E.
9:56					Descend to 1st run
9.59:40					Bit of turbulence
		4kft			Tops of Sc
					Clear before base
10:05:08	R1	10kft			Under Ci, clear otherwise
10:10:42					Passing under small Sc
					trying to avoid
10:14:39					Extending run for wet Nephs/cu
					coming under ~ 5/8 Sc
					Looks as though we're coming
					out from under Ci as well
10:18:53	R1	10kft			End (after CCN puffing!)
10:20:40	P1	5kft			Start 1kft/min
10:25					Climbing under earlier Sc for
					start
10:25					Now seems clear of Sc above
					some cloud, should go above

Aircraft Scientist's Log

POLARIS

Flight No B.199..... Date ...17/5/6..... Page 2 of 5

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
10:27			S		TW probe us DFC
10:28		Taff	S		some Sc for SC Ident
1032 04	P1.1	FL200			End
1034 05	P1.2	FL100	N		
1041 37	P1.2	FL170			End To avoid scat edge of Sc
	P1.3	170	S		Clear of Sc below good Ci above maintaining
10:46					
10:50					Ice crystals CPI / Cloud probe
					Dropping to FL230 for
10:53:01	R2.1	230	N		~12kft below Ci
10:58:35 01					13th orbit 35°
11 01 08	P2.2				
11 03 05	02				
11.04 35	R2.3	230	S		
11:10:42					End, turn on recip to head N
					out of Ci edge
		230		56.54 N 0.24 E	CPI & Cld Phys seeing ice
11 12 59	P2.4	230	N		Still 8/8 Ci above, clear of Sc
					below
					Heading more E to avoid Dover area
					Out of Ci edge now DFC
11:26					Funny contrail above for 20 edges
11:30:59	R2.4		S		End
11.33.38	P2		S		Start loading back towards Ci
11:39		280			in Ci

Flight No B 199 Date 17/5/6 Page 3 of 5

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
11:40:17	P2	290	S	55 42 N 154 E	Start of run out of profile
	P3				Some bullet roseties
		290			End of run in Ci, climbing
					to 1000ft above
11 52 35	P3	290	N		Profile to get above Ci
11 58 26		310			Turning to 310 (traffic
					Contrails weakly
					96.7
					774 engine settings
					90.9
					5.3
					Some SC below, difficult to
					see w/ Ci around
12:03 ish		338			More Buoy contrails
					96.9
					775
					90.9
					5.3
12:07		348			Plateau and small ice step climb
12:07:59	P3	350			End - Looks as though will be
					in/out of tops on run
12:09					New contrails 96.9 / 775 / 90.6 5.1
					Bullet Rosettes
12:12:02	P4	350	S		Small ice, not abl off
12:14:29					Coming under some Ci layer

12:15:53 Sonde 1

Aircraft Scientist's Log

Flight No **B**...199..... Date .....17/5/6..... Page ...4.. of ...5...

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
12:21					CPI & Cld Phys not seeing much now, seem to be above Sonde 2
12:24:04					
12:27:45	R4·2	350	N		only going to do 2 orbits
12:31:45					SWS stuck in Nadir
12:32:11	03	25° bank			CPI - seeing crystals at start of obt
12 37 07					
12 37 06	04	25.4° bank			into top of Ci
12 42 35	End.				Ci seems a bit thinner below
					some evidence of Sc below
12:44:00	R·45				clear of ice on CPI
12:46:50					Cld Phys die CPI seeing ice
12:49					into thicker part of Ci tops
12:51					Out of Ci clearing below
					Seem Sc below and Ci
12:56:00	R4·3	End			Sc clear where CPI Cloud phys - nothing plotted
					Some Sc under Ci edge
12:59:03	R4·4		S		Running into Ci by descent
13 03 04	R4·6				End, trying to get down into Cld to 340
13 04 05	P4				
13 05 16	R5	340	S		Not many ptles CPI / More Cld Phys
13:12					work in Ci no Cld below
	R5				Ending run short as not in enough Ci and descending 330
	P5				
13:	P5	340 ↓ 336	N		

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
13:14:38	P6	330			Turning W, will try to descend
13:20:35	P6				to 320 to get in Ci
"	R6	320	W		
13:30:53	R6				end Turning left and descending
					to 315
13:33:38	P7	320	S		to 310
13:35:04	P7/R7	310	S		CPI Plateletes / Cld Plys Small ice
13:41:45	R7				
13:43:47	P8	310			
13:45:20	P8/R8	300	W		
13:47					In Cloud again
13:49					Some Sc below above
13:50:20	R8				end Turning W for Profile
					descend forward Dewcooble
13:51:51	P9	300	W		CPI Ice / Cld Plys Mixture
13:54:50					CPI / Cld Plys mix but getting bigger
13:57:39					" " Rosettes / No change
		240			out of Ci CPI / Cld Plys
					Pretty clear below
14:02:32	P9	190			End of K Science

CLOUD PHYSICS LOG Flight B199

Date: 17/05/06	Operator: KT/PJ	DRS Time: 08:33:50	DAU1 Time: -0s	DAU2 Time: +0	DAU3 Time: -0s	Aux1 Time: +0	Aux2 Time: +0	Page 1 of 4

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m 3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
10:04:15	874	0.10	11	20													FL005
10:05:06	1137	0.1	11	20													Start Run 1 at 500FT
10:07:00	1518	0.08	11	20													
10:09:00	521	0.10	11	20													
10:11:00	507	0.11	11	30													
10:13:00	503	0.10	11	30													
10:15:00	552	0.10	11	40													
10:17:00	619	0.10	11	30													
10:18:52	817	0.09	11	20													End Run 1
10:20:42	917	0.09	11	50													Start Profile 1 at50FT
10:22:00	668	0.11	11	10													FL010
10:23:06	547	0.10	11	20													FL020
10:24:20	456	0.11	11	20													FL030
10:25:27	301	0.11	11	7													FL040
10:26:33	241	0.10	11	7													FL050
10:27:42	190	0.10	11	10													FL060
10:28:45	146	0.10	11	0													FL070
10:29:46	217	0.14	11	0													FL080
10:30:53	202	0.11	11	0													FL090
10:32:08	112	0.10	11	0													Interrupt profile 1 at FL100
10:34:04	218	0.11	11	0													Continue P1 from FL100
10:35:14	202	0.13	11	0													FL110
10:36:20	205	0.13	11	0													FL120
10:37:21	219	0.11	11	0													FL130
10:38:26	224	0.11	11	0													FL140
10:39:30	209	0.10	11	0													FL150
10:40:34	174	0.11	11	0													FL160
10:41:37	225	0.13	11	0													Interrupt P1 FL170
10:43:40	183	0.11	11	0													Continue P1 at FL170
10:44:49	220	0.11	11	0													FL180
10:45:51	130	0.08	11	0													FL190
10:46:53	198	0.08	11	0													FL200
10:47:54	165	0.07	11	0													FL210
10:49:00	171	0.08	11	3													FL220
10:49:54	93	0.07	11	3													FL230
10:51:05	815	0.06	11	120		71	250									10	Interrupt P1 FL240
10:51:58	1364	0.06	12	70		25	225									10	FL230
10:52:59	1462	0.06	12	0													FL230
10:55:00	437	0.06	12	5													
10:57:00	138	0.08	12	0													
10:58:52	123	0.07	12	0													Start Orbit 1 35 degrees
11:01:07	83	0.09	12	0													End Orbit 1
11:03:03	135	0.08	12	0													Start Orbit 2 60 degrees
11:04:35	98	0.08	12	0													End Orbit 2
11:05:41	90	0.08	12	0													Start run 2.3
11:07:00	90	0.07	12	0													

CLOUD PHYSICS LOG Flight B199

Date: 17/05/06	Operator: KT/PJ	DRS Time: 08:33:50	DAU1 Time: -0s	DAU2 Time: +0	DAU3 Time: -0s	Aux1 Time: +0	Aux2 Time: +0	Page 2 of 4

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G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
11:09:00	88	0.08	12	0													
11:10:43	78	0.08	12	10		10	225									10	Start R3 FL230
11:12:00	156	0.08	12	200		74	200									10	Some small ice too
11:14:00	101	0.07	13	0		0	0									11	
11:16:00	56	0.08	13	0		0	0										
11:18:00	43	0.08	13	0		0	0										
11:20:00	66	0.07	13	0		0	0										
11:22:00	76	0.08	13	2		0	0										
11:24:00	55	0.09	13	0		0	0										
11:26:00	49	0.10	13	1		0	0										
11:28:00	51	0.08	13	1		0	0										
11:30:00	49	0.09	13	0		0	0										
11:31:00	58	0.10	13	0													End R3
11:33:00	66	0.10	13	0													
11:33:40	72	0.09	13	0		0	0										Start P2
11:34:45	57	0.08	13	1													FL240
11:35:45	48	0.09	13	0													FL250
11:37:26	442	0.06	13	0													FL265
11:37:51	1040	0.06	13	0													FL270
11:39:00	1190	0.06	13	90		31	225									11	FL280 some graupel too
11:40:16	1153	0.06	13	90		38	175									10	FL290 End P2, start R3 some small ice too
11:42:30	858	0.06	14	80		25.5	200									10	Some small ice
11:44:00	924	0.06	14	100		74	175									11	Some graupel too
11:46:00	1129	0.06	14	50		18.5	223									10	
11:48:00	1644	0.06	15	100		38	250									10	
11:50:18	903	0.06	15	20		12.50	200									10	End R3
11:52:00	542	0.07	15	90		36.5	200									10	
11:52:34	531	0.07	16	90		30	200									11	Start P3 Some graupel too
11:53:40	550	0.06	16	80		37.5	200									11	FL300
11:55:12	479	0.07	16	100		47	150									11	FL310
11:56:43	393	0.08	16	20		26	225									11	FL320
11:58:19	644	0.07	16	90		36.5	175									11	FL330 (interrupt P3)
12:00:00	445	0.07	17	100		65	150									11	
12:00:55	587	0.07	17	100		52	100									11	Continue P3 from FL330
12:03:46	1055	0.06	18	100		6.5	100									11	FL340
12:05:00	1063	0.07	18	20		7	125									11	
12:07:00	1269	0.06	18	80		33.5	100									11	
12:07:56	1234	0.06	19	100		38.5	122									11	End P3 at FL350
12:10:00	1214	0.06	19	40		3.5	0									11	
12:12:00	1084	0.06	19	80		45	100									11	Start R4
12:14:00	1059	0.06	19	100		47	100									11	
12:16:00	974	0.06	19	50		17	100									11	Sonde dropped
12:18:00	988	0.06	20	50		25	100									11	Some noise on 2D-C
12:20:00	6590	1.04	20	5		0	0										Sudden jump on PCASP
12:22:00	2503	1.12	20	30		0	0										
12:24:00	5330	1.04	20	10		0	0										Sonde dropped

CLOUD PHYSICS LOG Flight B199

Date: 17/05/06	Operator: KT/PJ	DRS Time: 08:33:50	DAU1 Time: -0s	DAU2 Time: +0	DAU3 Time: -0s	Aux1 Time: +0	Aux2 Time: +0	Page 3 of 4

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G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
12:24:29	1206	1.15	20	20		0	0										End R4 Noise on 2D-C
12:27:00	1284	1.06	20	8		0	0										
12:28:00	1108	1.16	20	8		0	0										Start R5
12:30:00	1642	1.15	20	20		0	0										
12:32:00	1763	1.15	20	20		0	0										Interrupt run 4.2 start orbit 3 Noise on 2D-C
12:34:00	1230	1.11	20	10		0	0										Noise on 2D-C
12:36:00	1112	1.18	20	10		2.5	0										Noise on 2D-C
12:38:00	5869	1.14	20	10		6.5	100										Noise on 2D-C Orbit 4
12:40:00	1587	0.95	20	5		9	125										Noise on 2D-C
12:42:00	1965	0.74	20	10		18	125										Noise on 2D-C
12:44:00	1693	0.52	20	10		6.5	120										Recommenced 4.3 Noise on 2D-C
12:46:00	1394	0.46	20	20		17.5	125										Noise on 2D-C
12:48:00	1631	0.50	20	50		127	100										Noise on 2D-C?
12:50:00	980	0.44	20	80		84	125										Noise on 2D-C
12:52:00	1078	0.32	20	5		17	125										Noise on 2D-C
12:54:00	1108	0.41	20	10		20	100									11	Mixture of noise and small ice. End run 4.3
12:56:00	1114	0.33	20	0		9.5	0										Noise on 2D-C
12:58:00	1099	0.28	20	20		65.5	100.5										Noise on 2D-C
13:00:00	944.09	0.24	20	5		0	0										Noise on 2D-C
13:02:40	1349	0.21	20	4		0	0									11	Noise on 2D-C
13:03:05	1520	0.19	20	5		2	0									11	Noise on 2D-C
13:04:05	1412	0.19	20	8		31.5	0										Start profile 4 Noise on 2D-C
13:05:30	1710	0.23	20	20		4.5	0										Noise on 2D-C End profile 4 FL350, Start run
13:07:00	1932	0.20	20	20		12.5	125										Noise on 2D-C
13:09:00	1409	0.17	21	0		0	0										Noise on 2D-C
13:11:00	1394	0.12	21	0		0	0										
13:12:00	750	0.14	21	0		0	0										Small ice on 2D-C
13:14:00	830	0.14	21	0		10	115									11	
13:15:51	717	0.12	21	0		0	0										Start Profile
13:17:07	1016	0.09	21	0		0	0										End profile FL330
13:19:00	1096	0.08	21	0		0	0										
13:20:00	628	0.09	21	0		0	0										Start profile6 at FL330
13:20:58	924	0.08	21	8		0	0										Stop profile6 at FL320
13:23:00	882	0.08	21	10		5	0									11	Some noise on 2D-C
13:25:00	1310	0.07	21	100		45.5	100									11	Some noise on 2D-C
13:26:30	1474	0.07	21	90		24	100									11	
13:28:00	1080	0.07	21	90		35	125									11	
13:30:00	994	0.07	21	50		24	125									11	

CLOUD PHYSICS LOG Flight B199

Date: 17/05/06	Operator: KT/PJ	DRS Time: 08:33:50	DAU1 Time: -0s	DAU2 Time: +0	DAU3 Time: -0s	Aux1 Time: +0	Aux2 Time: +0	Page 4 of 5

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
13:31:00	869	0.08	21	90		80	125									11	Pcasp Vref = 0.0 End run 6
13:35:00	1454	0.08	22	50		55	125									11	End profile at FL310, start run
13:37:00	1403	0.08	22	50		38	125									11	
13:39:00	1477	0.07	22	50		10	100									11	PCASP Vref still 0.0
13:41:00	732	0.07	22	10		1.5	0										
13:41:40	921	0.07	22	5		1.0	0										End run
13:43:47	957	0.07	22	10		11.5	0									11	Start profile 8 FL310-FL300
13:45:19	1210	0.06	22	8		1.5	0									11	End P8 start run8 at FL300
13:47:00	1472	0.07	22	90		19.5	150									11	
13:49:00	1731	0.08	22	100		18.5	125									11	PCASP Vref still 0.0
13:50:20	1288	0.08	22	20		13.50	0									11	End run 8
13:51:51	1413	0.09	22	90		33	127									11	Start P9
13:52:50	1534	0.09	23	90		34.5	150									11	FL290 Mix 10/11
13:53:54	1305	0.10	23	90		31.5	150									11	FL280 Some 10
13:54:54	1203	0.09	23	70		24.5	225									10	FL270
13:55:53	1402	0.09	23	70		24	175									10	FL260 Some columns
13:56:49	1754	0.10	23	90		31.5	200									10	FL250
13:57:45	1445	0.09	23	80		30	200									11	FL240 some 10
13:58:40	902	0.10	23	0		0	0										FL230
13:59:34	1123	0.09	23	0		0	0										FL220
14:00:27	1027	0.1	23	0		0	0										FL210 PCASP Vref still 0
14:01:20	1078	0.1	23	0		0	0										FL200
14:02:32	968	0.09	23	0		0	0									11	End P9 @ FL190
14:04:00	1107	0.08	23	0		0	0										
14:06:00	907	0.10	23	0		0	0										
14:08:00	825	0.09	23	0		0	0										
14:10:00	770	0.09	23	0		0	0										
14:12:00	786	0.09	23	5		6	250									4	Big ice? –20C
14:15:00	1849	0.09	25	100		54	450									4	
14:16:00	2248	0.09	27	200		75	300									4	
14:18:00	2085	0.09	28	100		47	500									8	
14:20:00	1035	0.08	28	9		0.5	0									8	Some small ice
14:22:00	2059	0.09	28	1		0	0										
14:22:50	1081	0.09	28	5		0	0										FL170 PCASP Vref still 0
14:23:15	1077	0.09	29	20		15	250									10	FL160
14:23:42	1150	0.09	29	0		0	0										FL150
14:24:13	1-64	0.09	29														

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CLOUD PHYSICS PROCESSING LOG

Flight number: B199 **Date:** 17/05/2006

B) FFSSP PROCESSING		
Processing Stage	Completed	Comments
1) Transfer *.txt files from DVD to PC B199_FFSSP_hh.txt for each hour of data B199_FFSSP_HVMS.txt		
2) FTP the files (ascii) from the PC to the directory PMSDATA: on FLOODS		
3) RUN MRFB:[PMS.FAST_FSSP]FSSP_EXTRACT_TAS a) Flight number: B199 b) Path name: MFDDATA:B199_MFDX c) Output directory: PMSDATA: d) Start time: 0 if unknown e) End time: 240000 if unknown		Problems running this but Manually edited o/p file
4) RUN MRFB:[PMS.FAST_FSSP]FFSSP_PROCESS_TXT a) Flight number: B199 b) Directory: PMSDATA: c) TAS in processing: Y d) Vel threshold (clicks) 0 e) Calibration file: Use, in order of preference, - if a calibration exists after the flight date, then the file that is closest in time to it, - or the most recent calibration file prior to the flight date. Format FFSSP_CALddmmyyyy.txt Calibration files to be stored in MRFB:[PMS.FAST_FSSP] f) Adjust FFSSP time Y/N g) If Y, enter value to add to data time (seconds)		Note the calibration file used Yes only if gross errors occur in FFSSP time eg; ~ 1hour
5) In PVWAVE a) enter: !path=!path+',mrfb:[pms.proc]' Note that the comma before "mrfb" is important! b) write_procffssp_to_m5,'pmsdata:B199_procffssp.dat', 'mfddata:B199_mfdX','pmsdata:B199_m5procffssp',/auto 1st argument is output file from 5) 2nd argument is the MFD 3rd argument is the new FFSSP data file in M5 format		Note the correction applied to FFSSP time by /auto
c) exit		
6) MODIFY a) Modifying datasets: pmsdata:B199_m5procffssp b) Datset: mfddata:B199_mfdX c) New dataset: Enter updated MFD name d) Parameter description file: leave blank to use default		
7) CHECKS:		
i) FFSSP and JW/Nevzorov LWC – are they correctly synchronized in time?		
ii) If not, may be necessary to repeat 5b) using addt=x keyword. This adds x sec to FFSSP time.		
iii) Alternative at 5b) is to use ,auto=602 or auto=605 to align FFSSP with Nevzorov LWC or TWC.		

CLOUD PHYSICS PROCESSING LOG

Flight number: B199 **Date:** 17/05/2006

C) 2D PROCESSING		
Processing Stage	Completed	Comments
1) Transfer B199.dat file from CD/DVD to PC		
2) Zip up file on PC (B199.zip)		
3) FTP the zipped file (binary) from the PC to the directory SEADAS_DATA:[SEADAS_DATA] on FLOODS		
4) Log on to FLOODS		
5) unzip SEADAS_DATA:[SEADAS_DATA]B199.zip		Unzips 2 files B199A.CHK and B199B.CHK
6) In PVWAVE i) !PATH=!PATH+',MRFB:[PMS.PROC]' ii) CONVERT_SEADAS_FILE a) Input file: SEADAS_DATA:[SEADAS_DATA]B199.dat b) Output file: SEADAS_DATA:[SEADAS_DATA] B199_seadas.dat iii) exit	29/06/06	Note the number of bad block reads and/or final numbers of blocks read & written 44771 blocks read from B199A B199B data is subset
7) run MRFB:[PMS.SEADAS]READM200_FILE a) Default directory: PMSDATA: b) Flight number: B199 c) Disk file name: SEADAS_DATA:[SEADAS_DATA] B199_seadas.dat d) Comment string: e) Start time: 0 if unknown f) End time: 240000 if unknown g) Read 2DC: Y h) Read 2DP: Y i) Secondary data N j) FSP-SYNC: Y k) cmd.str: N l) Auto time correction: N m) Full length secondary: N	29/06/06	Don't worry about lots of FORTRAN run-time errors as long as the program continues. These are format errors when writing to ascii files. B199A data reaches ~ 125900 Not required Not required
8) 2D image display and printing Quick look at image blocks if required In PVWAVE i) !PATH=!PATH+',MRFB:[PMS.PROC]' i) WAVE> IMAGEDISPLAY a) 2D directory name: PMSDATA: b) Flight number: B199 c) IWC plot: N d) Select probe: (1) 2DC (2) 2DP e) Start time: 0 if unknown f) End time: 240000 if unknown g) Time interval (sec): 0 for every image block nominal 5 sec		This section is optional Features to look for: 1) Noise on 2D-P – does it affect non-edge diodes (with potential to create spurious particle counts)? 2) Can you identify a dominant particle habit for the whole flight (eg. drops or crystals) 3)
Preparation of imagery for Core data product iii) WAVE> auto_image a) 2D directory name: PMSDATA:		

b) Flight number: B199 c) Enter date: YYYYMMDD d) Enter start time 0 if unknown e) Enter end time 240000 if unknown f) Enter time interval (sec) between successive imaged blocks 10 iv) exit PVWAVE Creates files	093000 143500 10	But data ends 125900 **2DC noisy after about 120500** **2DC noisy after c. 110000** FAAM_YYYYMMDD_R0_B199_2Dx-IMAGES.PS
ftp *.PS files from PMSDATA: to PC		
Load each into Ghostview or other pdf-converter		
Output as pdf file (70 dpi resolution) and append name prefix of CORE-CLOUD-PHY_ to converted files	30/06/06	In O:/CloudPhys Core data
9) run MRFB:[PMS.SPEC2D.AUTO]PROCESS2D_AUTO a) Flight number: B199 b) Directory: PMSDATA: c) File generation: Hit enter d) Time correction: Time offset of the 2D data		If program crashes at a certain Time, for any reason, re-run With that time as the new end.
e) TAS: Y f) MFD directory: MFDDATA:B199_MFDX g) Probe number: (1) 2DC (2) 2DP (0) Both 0 unless either probe known to be faulty h) Start time: Take-off or 0 if unknown i) End time: Landing or 240000 if unknown j) Nominal averaging: 0.2 seconds for conversion to M5 k) Particle type: 8 if known to be in ice cloud 11 if known to be in water cloud 8 if known to be in mixed-phase 8 if unknown l) Coefficient choice: 2 m) Output root filename: PMSDATA:B199_PROC2D	 1 093000 130000 0.2 8	 2DP not processed Look for realistic times in Flight Summary file or Cloud Phys operator log. Note the particle type
10) In PVWAVE i) enter: !PATH=!PATH+',MRFB:[PMS.PROC]' Note that the comma before "mrfb" is important! ii) WRITE_PROC2D_TO_M5, 'PMSDATA:B199_PROC2D.DAT', 'PMSDATA:B199_M5PROC2D' iii) exit	 30/06/06	Note: This will run quicker if you specify correct start / end times at 9h) and 9j).
11) MODIFY a) Modifying datasets: pmsdata:B199_m5proc2D b) Datset: mfddata:B199_mfdX c) New dataset: Enter modified MFD name d) Parameter description file: leave blank to use default	 30/06/06	
12) CHECKS:		
i) Is 2DC/2DP IWC of comparable magnitude and well-correlated with Nevzorov TWC?		Difficult to assess Nevz.TWC due to drifts and small signal

CLOUD PHYSICS PROCESSING LOG

Flight number: B199 **Date:** 17/05/2006

D) PCASP PROCESSING		
Processing Stage	Completed	Comments
1) Complete stage 7) in 2D processing Ensures B199_FSP.DAT containing raw PCASP data is written to directory PMSDATA:		
2) run MRFB:[PMS.PCASP]PROCPCASP_NEW a) Flight number: B199 b) File name: PMSDATA:B199_FSP.DAT c) Root output name: PMSDATA:B199_PROCPCASP Produces PMSDATA:B199_PROCPCASP.DAT (binary) PMSDATA:B199_PROCPCASP.OUT (ascii)		Note the min size channel Note the volume flow rate
d) Minimum size channel: Default = 1 If smallest size channel are known to be noisy the value of the highest noise free channel to be entered here	1	But probably noisy at high altitude.
e) Calibration volume flow rate: Use the most recent value. Calibration files to be stored in **????** Entering zero gives default value = 1.0 cm3/sec	1.0	
f) Time correction: Same value as used in 2D processing stage 9 d)		
g) Start time: Take-off or 0 if unknown	093000	Look for realistic times in Flight Summary file or Cloud Phys operator log.
h) End time: Landing or 240000 if unknown	130000	
3) In PVWAVE i) enter: !PATH=!PATH+',MRFB:[PMS.PROC]' Note that the comma before "mrfb" is important! ii) write_procpcasp_to_m5,'pmsdata:B199_procpcasp.dat' ,'pmsdata:B199_m5procpcasp' iii) exit	30/06/06	Note: This will run quicker if you specify correct start / end times at 2g) and 2h).
4) MODIFY a) Modifying datasets: pmsdata:B199_m5procpcasp b) Datset: mfddata:B199_mfdX c) New dataset: Enter modified MFD name d) Parameter description file: leave blank to use default	MFDB 30/06/06	

CLOUD PHYSICS PROCESSING LOG

Flight number: B199 **Date:** 17/05/2006

E) NetCDF file preparation and ftp to BADC		
Processing Stage	Completed	Comments
1) Run TAREXEC:MFD_BADC		
For inputs below, just press ENTER to use defaults		Defaults in [square brackets]
a) MFD to convert: MFDDATA:B199_MFDX b) version number for BADC: r[0] c) Names file: TARDIS_ROOT:[CALTEXT.NETCDF]CP_NAMES.TXT d) Directory: [DATA_ROOT:[NETCDF]] e) File prefix: [core-cloud-phy_faam] f) File suffix: [ ] g) File for output: [core-cloud-phy_faam_yyyymmdd_rm_B199.nc]		As from 4c) above default NOT the default default default default Default name is generated
2) Ftp transfer to BADC - stage 1) creates two files: - core-cloud-phy_faam_yyyymmdd_rm_B199.nc - core-cloud-phy_faam_yyyymmdd_rm_B199.txt The *.txt file should be renamed to core-cloud-phy_faam_yyyymmdd_rm_B199_descrip.txt but this cannot be done on VMS as the filename is too long You should do it if the file is first transferred to a PC, or after it has been uploaded to the appropriate “incoming” directory at BADC a) ftp ftp.badc.rl.ac.uk b) login with username and password c) cd /incoming/faam/campaign-processed-core d) copy *.txt file as ascii e) copy *.nc and *2D-IMAGES.pdf files as binary	30/06/06	complete

F) BACKUP PROCEDURES		
Processing Stage	Completed	Comments
1) Backup the intermediate files created in PMSDATA: a) zip “-V” PMSDATA:B199*.* outdir:B199_PMSDATA.zip Note that the uppercase “-V” option is important to preserve the VMS file characteristics when files are restored from this zip file.	30/06/06	Note destination directory “outdir” In CLOUD_PHYS:[BROWN.PMSZIP]

CLOUD PHYSICS PROCESSING LOG

Flight number: B199 **Date:** 17/05/2006

A) Raw data transfer to BADC		
Processing Stage	Completed	Comments
1) Transfer raw data files from DVD to PC B199_FFSSP_hh.txt for each hour of data B199_FFSSP_HVMS.txt B199_FFSSP.raw B199_FFSSP_House_1.hse etc. 2) Zip these file on the PC -output file: core-cloud-phy_faam_yyyymmdd_r0_B199_rawffssp.zip		
3) Transfer SEADAS B199.dat file from CD/DVD to PC 4) Zip up file on PC (B199.zip) - rename B199.zip to core-cloud-phy_faam_yyyymmdd_r0_B199_rawseadas.zip		
5) ftp to BADC a) ftp ftp.badc.rl.ac.uk b) login with username and password c) cd incoming/faam/campaign_raw d) bin e) put core-cloud-phy_faam_yyyymmdd_r0_B199_rawffssp.zip f) put core-cloud-phy_faam_yyyymmdd_r0_B199_rawseadas.zip	30/06/06	Binary data transfer Raw data already sent to BADC from FAAM

FAAM Dropsonde Flight Log

Flight No.	B199	Date	17/5/06
Page No.	1 of 1	Operator	JT

GMT	**Sonde No.**	**Event**	**Comments**
		e.g. launch, splashdown	*e.g. wind data? PTH data? Lat/Long* *NB strings of dropsonde data contain:* *time, pressure hPa, T deg C, RH %, wind direction deg, wind speed m/s, longitude, latitude, height m*
12:07:47	1	LAUNCH	`130747.7 9999.00 99.00 999.00 999.00 999.00 999.00 1.19593 55.99039`
12:28:09	1	SPLASH DOWN	`132809.8 1012.43 11.74 82.58 204.69 8.47 -10.11 1.39821 56.00882`
12:24:02	2	LAUNCH	`132134.2* 9999.00 99.00 999.00 999.00 999.00 999.00 1.70687 55.16439`
12:36:30	2	SPLASH DOWN	`133630.8 1014.39 10.83 90.72 193.38 4.67 -10.20 1.91696 55.18460`
			*Note erroneous launch time for sonde 2 in data, corrected to time of adjacent data points in log – 12:24:02

P.S.A.P. Log

Flight No. **B**..199..... Date 17/05/06.....

FAAM © 2004

GMT	Filter Trans.	Flow Rate	B_a x 10^{-6}	Ph_det levels		Run	Remarks
Set to DRS time	New filter Tr = 1.000	Set to 3.0 lpm				(30s) ? Ave = s	←Preflight
09:37:00	1.00	3					started pump with new filter
10:35:00	0.973	3	0	19	45		Pump turned off because now in very clean air above 8000ft
15:25:00	0.973	3	5.eE-6	20	45		Pump back on
15:45:00	0.911	3	2.e-6				end of flight

Microwave Radiometers FLIGHT LOG	Date	17/05/06	Flight	B199	log pages	
Operator(s)	James Bowles		Campaign	CAESAR		
Departure	Cranfield		Arrival	Cranfield		

System start

MARSS

Visual pod inspection						•
Close 3 SSP circuit breakers						•
Close all MARSS circuit breakers						•
FERA on				at time	07:50	
Temperature controller initial temps	Ch16	17.8°C	Ch 17	17.9°C	Ch18	18°C
Temperature controller set points		54°C		58°C	-20	40°C
MARSS CPU on				at time	08:00	
Initial target temperatures	Hot	293.1		Cold	293	
Target heating						•
*** CHECK SCAN HEAD CLEAR ***						•
Scanning on (LMD box)				at time	08:11	
Scan indication		Monitor	•		Visual	•

Deimos

Close all Deimos circuit breakers	NOT FITTED			
Turn on Deimos CPU				
*** CHECK SCAN HEAD CLEAR ***				
Start Deimos Software			at time	
Initial target temperatures	Hot		Cold	
Target heating				
Scan indication		Monitor		Visual
Weather	Cloud	St cu	Precip	none
	Surface	dry	Pressure	
	Other			

System functionality check

(after initial system warmup, approx 1 hour)

PC to DRS Time error		$t_{PC}=t_{DRS}$ +	0		at time	08:14			
Brightness temps 'sensible'									•
Target temps	MARSS:	Hot	345		Cold	295			
	Deimos:	Hot			Cold				
Channel gains 'sensible'		Ch1 A (-)	Ch3 A (-)	Ch1 B (-)	Ch3 B (-)				
		Ch16 (40-44)	Ch17 (45-49)	Ch18 (40-44)	Ch19 (40-44)	Ch20 (44-48)			
		1	35	39	41	42			

Power changeover

Headset on before start		•
Listen to engine start sequence	4, 3, 2, 1.	•
LMD off (3 switches, bottom to top)		•
Exit Deimos Software (x)		
POWER CHANGEOVER		
LMD on (3 switches, top to bottom)	then pushbutton	•
Restart Deimos Software		
System running again	at time	
	09:13	

Flight #	B	Date		Operator(s)		log page	2	of	2

Time	**Run id**	**Alt/FL**	*Remarks*	**Sys**
08:27	**Preflig**		Ch.16 working, good gain	
09:06	**“**		Ch.16 stopped!! Exit MARSS software, no diff	
09:53	**Trans**		Cycled ch.16 power on Ferra, no diff	
14:42	**Tyne**		LMD off MARSS prog exit. Refuel	

ARIES flight log

Flight: B199 | Location: N. Sea | page 1 of 4

Date: 17/05/06 | Operator(s): TIDDEMAN | Resolution: 1 | Gain A: 2 B: 2

Notes:

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
090915	Ground	B199A	C	71	31	21	-190	25	CH1 x1	Pre Flight
100510	100ft Run	B199B	C	71	30	12	-190	25	CH1 x1	
100615	"	B199C	C	71	31	13	-190	25	N1 x4	
100955	"	B199D	C	71	31	15	-190	24	CH1 x1	
101059	"	B199E	C	71	30	15	-190	24	N1 x4	
101442	"	B199F	C	71	31	16	-190	24	CH1 x1	
101603	"	B199G	C	71	31	16	-190	24	N1 x1	
		~~B199H~~								
105301	FL230	B199I	O	71	30	2	-190	23	Z1 x1	
105446	"	B199J	C	71	31	-1	-190	21	CH1 x1	
105618	"	B199K	O	71	31	-4	-190	18	Z1 x1	
105827	"	B199L	C	71	31	-4	-190	19	CH1 x1	
105939	Orbit 255°	B199M	O	70	30	-5	-190	19	Z1 x1	
110218	FL230	B199N	C	71	31	-6	-190	18	CH1 x1	
110522	Orbit 255°	B199O	O	70	30	-6	-190	18	Z1 x1	
110521	FL230	B199P	C	71	31	-7	-190	17	CH1 x1	
110635	"	B199Q	C	71	31	-7	-190	18	CH1 x1	
110746	"	B199R	O	71	30	-8	-190	18	Z1 x1	
111000	"	B199S	C	71	30	-8	-190	16	CH1 x1	

ARIES flight log

Flight: B199	Location: N. Sea	page 2 of 4
Date: 17/05/06	Operator(s): TIDDEMAN	Resolution: 1	Gain A: 2 B: 2
Notes:		

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
111318	Run FL230	B199T	O	70	30	-8	-190	18	21x1	
111648	"	B199U	C	71	31	-9	-190	19	CH1x1	? styped
111807	"	B199V	C	71	31	-9	-191	20	CH1x1	
111917	"	B199W	O	70	31	-10	-191	20	21x1	
112137	"	B199X	C	71	31	-10	-191	18	CH1x1	
112348	"	B199Y	C	71	31	-10	-191	19	CH1x1	
112505	"	B1992	O	70	30	-10	-191	19	230x1	
112802	"	B199Z	C	71	31	-11	-190	17	CH1x1	
112912	"	B1991	C	71	31	-11	-190	18	CH1x1	
		B1992								
113132	"	B1993	O	70	31	-12	-190	14	230x1	
114102	FL290	B1994	O	70	31	-12	-191	19	230x1	
114305	"	B1995	C	71	31	-13	-190	19	CH1x1	
114624	"	B1996	O	70	31	-13	-190	18	230x1	
114617	"	B1997	C	71	31	-14	-191	17	CH1x1	
114722	"	B1998	C	71	31	-15	-191	17	CH1x1	
114834	"	B1999	O	70	30	-15	-191	17	230x1	
115030	"	~~B199C~~ B199A	C	71	31	-16	-191	16	CH1x1	
120827	FL350	C199B	C	71	31	-19	-191	18	CH1x1	

ARIES flight log

Flight: B199	Location: N. Sea	page 3 of 4
Date: 17/05/06	Operator(s): TIDDEMAN	Resolution: 1	Gain A: 2 B: 2
Notes:		

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
120951	FL350	C199C	C	71	31	-19	-191	17	N1 x 4	
121332	"	C199D	C	70	31	-21	-191	14	CH1 x1	
121438	"	C199E	C	71	30	-22	-191	15	RN1 x 4	
121823	"	C199F	C	71	30	-24	-190	14	CH1 x1	
121932	"	C199G	C	71	31	-24	-190	15	N1 x4	
122321	"	C199H	C	71	31	-25	-191	15	CH1 x1	
122424	"	C199I	C	71	31	-25	-190	16	N1 x 1	
122700	"	C199J	C	71	31	-25	-190	17	CH1 x1	
122817	"	C199K	C	70	31	-25	-190	17	N1 x 3	
123109	" to orbit	C199L	C	70	31	-26	-190	16	CH1 x1	~~to orbit~~
123219	FL350 orbit	C199M	C	71	30	-26	-191	17	N1 x 3	25° 23° bank
123510	"	C199N	C	71	30	-26	-191	15	N1 x 1	
123630	"	C199O	C	71	31	-26	-190	14	CH1 x 1	
123813	"	C199P	C	71	31	-26	-190	15	N1 x 4	25°
124154	"	C199Q	C	71	31	-27	-190	15	N1 x 1	
124303	FL350	C199R	C	70	31	-27	-190	15	CH1 x 1	
124416	"	C199S	C	71	31	-27	-190	16	N1 x 4	
124817	"	C199T	C	71	31	-27	-191	16	CH1 x1	
124922	"	C199U	C	71	30	-27	-190	17	N1 x 4	

ARIES flight log

Flight: B199 | **Location:** N. Sea | page 4 of 4

Date: 17/5/06 | **Operator(s):** TIDDEMAN | **Resolution:** 1 | **Gain A:** 2 **B:** 2

Notes:

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
125343	FL350	C199V	C	71	31	-27	-190	17	CHIX1	
125756	"	C199W	C	71	30	-26	-191	19	NIX3	
130046	"	C199X	C	71	31	-27	-191	17	CHIX1	
130518	FL340	C199Y	C	71	30	-26	-191	17	CHIX1	
130626	"	C199Z	C	71	31	-26	-191	17	NIX4	
131049	"	C1990	C	71	30	-27	-191	14	CHIX1	
131205	"	C1991	C	71	31	-27	-191	15	NIX3	- aborted run
132107	FL320	C1992	C	71	31	-26	-190	18	CHIX1	
132214	"	C1993	C	71	30	-26	-190	18	NIX4	
132602	"	C1994	C	71	30	-26	-190	15	CHIX1	
132738	"	C1995	C	71	31	-26	-190	15	NIX3	
133045	"	C1996	C	70	31	-26	-191	14	CHIX1	
133503	FL310	C1997	C	71	30	-25	-190	18	CHIX1	
133808	FL310	C1998	C	71	31	-25	-190	18	NIX4	
133956	"	C1999	C	71	30	-25	-190	15	CHIX1	
134103	"	D199A	C	71	31	-25	-190	16	NIX4	Aborted
134525	FL300	D199B	C	70	31	-25	-191	14	CHIX1	
134630	"	D199C	C	71	30	-25	-190	15	NIX4	

Wet Nephelometer Log

Flight No **B**...199... Date ...17/05/06 Operator's name: ..Ben Johnson... Page ...1... of .....

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T_{water}	Remarks
								started with wet neph humid during transit
100508	R1	100ft	14	55-60	93	43.5	43.5	Wet neph RH = 93% falling to 5
								water temp = 43.5°C, falling to 5°C
								Dry neph green ~~s~~ 30-40x10^{-6} m^{-1}
101853	End R1	100ft	14	55-60	~~60~~ 58	5	5	
102040	P1	5oft	14	57	55	5	5	Good humidigrams at 100ft 55-93 RH
102500		5000ft	12.5	42	46	5	5	Growth rate ~1.4 at 90% RH
102600		6000ft	12.0	~~35~~	42	~~40~~	5	~1.1 at 55% RH
								Humidifying wet neph
								for remainder of profile
102900		9000ft		20	35	35	40	Neph values fallen very low; Clean air
								unlikely any more useful data now
								until much later in flight
104700		20000ft	11.0	~~50~~	80	~~10~~ 35	~~35~~	Approaching cirrus base, drying wet neph

SWS FLIGHT LOG SHEET

Flight #	B199	Date	17/05/2006	Operator(s)	M. GLEW	log page	1	of	

Note to operator: Indicate whether entry refers to SWS or SHIMS

Time	Run id	Alt/FL	Mirr Pos	Int Times		Remarks	SWS	USH	LSH
				Vis	NIR				
0944			174 aft	350	750	On rack PC. Time synchronized to HORACE.			
0947						Video tape 1 on			
0952			174 aft	150	750				
0959			174 aft	750	750	Over sea, preparing for low level run			
100508	R1	100 ft	174 aft	750	750	Over sea			
1021	P1		6 forw	50	250	4 Hz			
1029	P1	FL080	6 Forw	100	250				
105301	R2.1	FL230	6 forw	100	250	4 Hz			
1057						Spikes on nir			
105922	O1	FL230	6 forw	30	100	Both saturated 35 deg			
110305	O2	FL230	6 forw	10	30	Both low peak 55 deg			
110433	R2.3	FL 230	6 forw	100	250				
1110						Odd spikes on NIR-transient blocky things			
111259	R2.4	FL230	6 forw	100	250				
1131						Video tape 2 on			
113059	R2.4 end	FL230	6 Forw	100	250				
113358	P2	FL230 up	6 forw	100	250				
114015	R3	FL290	6 forw	100	250	In Cloud			
115235	P3	FL290 up	174 aft	100	250	Switched to nadir, in cloud			
1156	P3	FL320	174 aft	200	250				
1158						Nir module looks to have switched off. Temp 21 deg, peltiers weren't on so module was not cooling			
1202	P3		174 aft	200	250	Cycled SWS and restarted labview, got NIR back after 2 attempts			
121202	R4	FL350	174 aft	200	250	Just in tops			
122745	R4.2	FL350	174 aft	200	250	Above cloud			
123146	O3	FL350	174 aft	100	200	25 deg			
123808	O4	FL350	174 aft	200	200	25 deg			
124400	R4.3	FL350	174 aft	200	200	Skimming tops			
125000	R4.3	FL350	174 aft	100	200	SWS scanning mirror frozen in position. Vis was saturating. In cloud tops. There is a lot of low cloud below			
125803	R4.4	FL350	174 aft	150	250	Thin high cloud, clear below			
1302	R4.4					VIS module saturating due to low cloud sheet			
130516	R5	FL340	174 aft	150	250	In cloud run			
1309	R5					Can clearly see low cloud on SWS camera			
1312	R5					No low cloud			
132055	R6	FL320	174 aft	150	250	Near cloud tops			
1330	R6					VIS saturating over low cloud layer			
133500	R7	FL310	174 aft	150	250	Some low cloud below			
134520	R8	FL300	174 aft	150	250	In cloud run			
135020	R8 end								
135010	P9	FL300 down	174 aft	150	250	In cloud. **1400 endex**			

Flight #	B199	Date	Operator(s)	M. GLEW	log page	1	of				

Time	Run id	Alt/FL	Int Times		Remarks	SWS	USH	LSH
			Vis	NIR				
0941			75	500	Running on Lap PC. Time synchronised to SWS PC which is set to HORACE by About Time			
100508	R1	100 ft	75	500	Over sea, some small cu			
101853	R1 End							
102240	P1	50ft up	75	500				
1034	P1	FL100	75	250	Changed from 2 to 4hz			
105301	R2	FL230	75	250	4 Hz			
114015	R3	FL290	75	250	In Cloud			
115235	P3	FL290 up	75	250	In cloud			
121202	R4	FL350	75	250	Just in tops			
122745	R4.2	FL350	75	250	Above cloud			
124400	R4.3	FL350	75	250	Skimming tops			
125803	R4.4	FL350	75	250	Thin high cloud, clear below			
130516	R5	FL340	75	250	In cloud run			
132055	R6	FL320	75	250	Near cloud tops			
133053	R6 end	FL320	75	250	Time check – within 1 sec of SWS time			
133500	R7	FL310	75	250	In cloud run			
134520	R8	FL300	75	250	In cloud run			
135020	R8 end							
135010	P9	FL300 down	150	250	In cloud			
					1400 endex			

Flight Manager's Instrument Status Log

Flight No. **B** 199 Date: 17th May 2006

Instrument	Operated	Instrument	Operated
Navigation		**Cloud Physics**	
INU	**Y**	**Probes**	
XR5M GPS	**Y**	FFSSP	**Y**
Cruciform GPS	**Y**	PCASP	**Y**
Satcom C	**Y**	2D-P	**Y**
Satcom H	**Y**	2D-C	Y
Thermometers		Cloudscope	**N**
De-Iced Temp	**Y**	SID 1	**y**
Non De-Iced	**Y**	SID 2	**N**
Heimann	**Y**	HVPS	**N**
Hygrometers		CIP25	**N**
G. Eastern	**Y**	CIP100	**N**
J. Williams	**Y**		
Nevzorov	**Y**		
TWC	**Y**	**Racks:**	
FWVS	**y**	INC	**N**
Radiometers		CCN / CPC	**Y**
Upper Clear	**Y**	CVI	**N**
" Red	**Y**		
" Silicon	**Y**		
" SHIMS	**Y**	**Aerosol**	
Lower Clear	Y	PSAP	**N**
" Red	**Y**	Nephelometer	**Y**
" Silicon	**Y**	Filters	**N**
		AMS	**N**
Large Radiometers			
IR Camera			
TAFTS	**N**		
MARSS	**y**	**Others:**	
DEIMOS	**Y**	IR Camera	**N**
ARIES	**Y**	NIR TDLAS	N
SWS	Y	2BT O3	N
Chemistry		VACC	N
Ozone	Y	PEROXIDE	N
SO2	N	Formaldehyde	N
NOX	Y	ADA	N
CO	Y	CPI	Y
ORAC	N	Noxy	N
PAN	N	PTRMS	N
PERCA	N	Bag Sampling	N
WAS	N	Tube Sampling	N

Faults / Incidents Log

Flight No. B199
Date: 17th May 2006

Instruments

1. TWC – status light came on at temperatures less than –25C turned off until above Temp

Did not recover at lower temperatures

2. Core console aft inboard PC crashed
3. RFC lost feed briefly during Orbit 2
4. MARRS – no channel 16

Aircraft

Satcom Calls

Nil

MISSING LOG SHEETS:

The following log sheets are not available for flight B199:

Log	Reason
CCN	Richard Cotton locating
Core Chemistry	NO log taken - replaced by post flight auto cal removal
CPI	Log only of interest to instrument operator so no copy left with FAAM

Document control

Revision	Date	Author	Comments
r0	26 Sep 2006	Doug Anderson	Initial version missing the above noted logs
r1			
r2			

VIDEO RECORDINGS:

2 x Upward Facing Cameras
2 x Down/Rear/Forward Facing Cameras

Digital8 video recordings from this flight reside with :

Dr Clare Lee

Observation Based Research Scientist
Met Office
Cordouan 2
FitzRoy Road
Devon
EX1 3PB
UK

Tel: +44 (0)1392 886875

E-mail: clare.lee@metoffice.gov.uk